

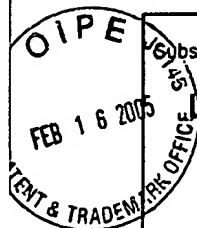
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| LIST OF REFERENCES CITED BY APPLICANT (use as many sheets as necessary) | | | | Application Number | 10/719,925 | |
| | | | | Filing Date | 11/20/2003 | |
| | | | | First Named Inventor | Mohammad H.S. Amin | |
| | | | | Art Unit | 2811 | |
| | | | | Examiner Name | Sara W. Crane | |
| Sheet | 1 | of | 3 | Attorney Docket Number | 706700-999150 | |
| U.S. PATENT DOCUMENTS | | | | | | |
| Examiner Initials | Cite No. ¹ | Document Number Number - Kind Code ² (if known) | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear | |
| SWC | AA | US- 5,323,344 | 06-21-1994 | Katayama et al. | | |
| | AB | US- 5,768,297 | 06-16-1998 | Shor | | |
| | AC | US- 6,459,097 B1 | 10-01-2002 | Zagoskin | | |
| | AD | US- 6,495,854 B1 | 12-17-2002 | Newns et al. | | |
| | AE | US- 6,563,311 B2 | 05-13-2003 | Zagoskin | | |
| | AF | US- 6,627,915 B1 | 09-30-2003 | Ustinov et al. | | |
| | AG | US-6,803,599 B2 | 10-12-2004 | Amin et al. | | |
| | AH | US- 2004/0077503 A1 | 04-22-2004 | Blais et al. | | |
| | AI | US- 60/341,974 | | Il'ichev et al. | | |
| | AJ | US- 60/370,087 | | Lidar et al. | | |
| SWC | AK | US- 60/429,170 | | Amin et al. | | |
| FOREIGN PATENT DOCUMENTS | | | | | | |
| Examiner Initials | Cite No. ¹ | Foreign Patent Document Country Code ³ - Number ⁴ - Kind Code ⁵ (if known) | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear | ⁶ |
| | | | | | | |
| | | | | | | |
| OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.) | | | | | | |
| SWC | AL | Amin, M.H.S., A.N. Omelyanchouk, A.M. Zagorskin, 2001, "Mechanisms of spontaneous current generation in an inhomogeneous d-wave superconductor," Phys. Rev. B 63, 212502. | | | | |
| SWC | AM | Amin, M.H.S., A.N. Omelyanchouk, S.N. Rashkeev, M. Coury, A.M. Zagorskin, 2002, "Quasiclassical Theory of Spontaneous Currents at Surfaces and Interfaces of d-Wave Superconductors," Physica B 318, 162. | | | | |
| SWC | AN | Averin, D.V., J.R. Friedman, J.E. Lukens, 2000, "Macroscopic resonant tunneling of magnetic flux," Phys. Rev. B 62, 11802. | | | | |

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| Examiner Signature | CRANE | Date Considered | 3/2005 |
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| Sheet | 2 | of | 3 | Attorney Docket Number | 706700-999150 |

| | | |
|-----|----|---|
| SWC | AO | Blais, A., A. Maassen van den Brink, A.M. Zagorskin, 2003, "Tunable Coupling of Superconducting Qubits," Phys. Rev. Lett. 90 , 127901. |
| | AP | Blais, A., A.M. Zagorskin, 2000, "Operation of universal gates in a solid-state quantum computer based on clean Josephson junctions between <i>d</i> -wave superconductors," Phys. Rev. A 61 , 042308. |
| | AQ | Bruder, C., A. van Otterlo, G.T. Zimanyi, 1995, "Tunnel junctions of unconventional superconductors," Phys. Rev. B 51 , 12904. |
| | AR | Cohen-Tannoudji, C.N., 1998, "Manipulating atoms with photons," Rev. Mod. Phys. 70 , p. 707-719. |
| | AS | DiVincenzo, D.P., 2000, "The Physical Implementation of Quantum Computation", published on ArXiv.org preprint server: quant-ph/0002077. |
| | AT | Dodd, J.L., M. A. Nielsen, M.J. Bremner, and R.T. Thew, 2002, "Universal quantum computation and simulation using any entangling Hamiltonian and local unitaries," Phys. Rev. A 65 , 040301. |
| | AU | Došlić, N., O. Kühn, J. Manz, K. Sundermann, 1998, "The 'Hydrogen Subway' – A Tunneling Approach to Intramolecular Hydrogen Transfer Reactions Controlled by Ultrashort Laser Pulses," Jour. Phys. Chem. A 102 , 9645-9650. |
| | AV | Ferguson, A.J., P.A. Cain, D.A. Williams, G.A.D. Briggs, 2002, "Ammonia-based quantum computer," Phys. Rev. A 65 , 034303. |
| | AW | Feynman, R., 1965, <i>The Feynman Lectures on Physics Vol. 3</i> , Addison-Wesley, Reading, Mass., pp. 8.11-8.14. |
| | AX | Friedman, J.R., D.V. Averin, 2002, "Aharonov-Casher-Effect Suppression of Macroscopic Tunneling of Magnetic Flux," Phys. Rev. Lett. 88 , 050403. |
| | AY | Il'ichev, E., M. Grajcar, R. Hlubina, R. P. J. IJsselsteijn, H. E. Hoenig, H.-G. Meyer, A. Golubov, M. H. S. Amin, A. M. Zagorskin, A. N. Omelyanchouk, M.Yu. Kupriyanov, 2001, "Degenerate Ground State in a Mesoscopic YBa ₂ Cu ₃ O _{7-x} Grain Boundary Josephson Junction," Phys. Rev. Lett. 86 , 5369. |
| | AZ | Il'ichev, E., V. Zakosarenko, L. Fritzsche, R. Stolz, H.E. Hoenig, H.-G. Meyer, M. Götz, A.B. Zorin, V.V. Khanin, A.B. Pavolotsky, J. Niemeyer, 2001, "Radio-frequency based monitoring of small supercurrents," Rev. Sci. Instru. 72 , 1882-1887. |
| | BA | Kulik, I.O., T. Hakioglu, A. Barone, 2002, "Quantum Computational Gates with Radiation Free Couplings," arXiv.org:cond-mat/0203313. |
| | BB | Lu, N., E.J. Robinson, P.R. Berman, 1987, "Coherent dynamics and complete population depletion of a special three-level quantum system," Phys. Rev. A 35 , 5088-5098. |
| | BC | Maassen van den Brink, A., 2003, "Comment on 'Aharonov-Casher-Effect Suppression of Macroscopic Tunneling of Magnetic Flux'," arXiv.org:cond-mat/0206218. |
| SWC | BD | Makhlin Y., G. Schön, and A. Shnirman, 2001, "Quantum-State Engineering with Josephson-Junction Devices," Rev. of Mod. Phys. 73 , pp. 357-400. |

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| Sheet | 3 | of | 3 | Attorney Docket Number | 706700-999150 |

| | | |
|--------------------|--------|--|
| SWC | BE | Martinis, J.M., S. Nam, J. Aumentado, C. Urbina, 2002, "Rabi Oscillations in a Large Josephson-Junction Qubit," Phys. Rev. Lett. 89 , 117901. |
| | BF | Metcalf, J., P. van der Straten, 1999, <i>Laser Cooling and Trapping</i> , Springer-Verlag, New York, pp. 259-261. |
| | BG | Mooij, J.E., T.P. Orlando, L. Levitov, L. Tian, C.H. van de Wal, S. Lloyd, 1999, "Josephson Persistent-Current Qubit," Science 285 , 1036. |
| | BH | Murali, K.V.R.M., D.S. Crankshaw, T.P. Orlando, Z. Dutton, W.D. Oliver, 2003, "Probing Decoherence with Electromagnetically Induced Transparency in Superconductive Quantum Circuits," arXiv.org:cond-mat/0311471. |
| | BI | Nicoletti, S., H. Moriceau, J.C. Villegier, D. Chateigner, B. Bourdeaux, C. Cabanel, J.Y. Laval, 1996, "Bi-epitaxial YBCO grain boundary Josephson junctions on SrTiO ₃ and sapphire substrates," Physica C 269 , 255-267. |
| | BJ | Nielsen, M.A., and I.L. Chuang, 2000, <i>Quantum Computation and Quantum Information</i> , Cambridge University Press, Cambridge, UK, p. 174. |
| | BK | Orlando, T.P., J.E. Mooij, L. Tian, C.H. van der Wal, L.S. Levitov, S. Lloyd, J.J. Mazo, 1999, "Superconducting persistent-current qubit," Phys. Rev. B 60 , 15398. |
| | BL | Palao, J.P., R. Kosloff, 2002, "Quantum Computing by an Optimal Control Algorithm for Unitary Transformations," Phys. Rev. Lett. 89 , 188301. |
| | BM | Plastina, F., G. Falci, 2002, "Communicating Josephson Qubits," arXiv.org:cond-mat/0206586. |
| | BN | Shore, B.W., 1990, <i>The Theory of Coherent Atomic Excitation Vol. 2</i> , Wiley, New York, section 13.7. |
| | BO | Tian, L., S. Lloyd, 2000, "Resonant cancellation of off-resonant effects in a multilevel qubit," Phys. Rev. A 62 , 050301. |
| | BP | Yu, Y., S. Han, X. Chu, S.-I Chu, Z. Wang, 2002, "Coherent Temporal Oscillations of Macroscopic Quantum States in a Josephson Junction," Science 296 , 889-892. |
| | BQ | Zagoskin, A.M., 1999, "A scalable, tunable qubit, based on a clean DND or grain boundary D-D junction," arXiv.org:cond-mat/9903170. |
| SWC | BR | Zhou, Z.Y., S.-I Chu, S. Han, 2002, "Quantum computing with superconducting devices: A three-level SQUID qubit," Phys. Rev. B 66 , 054527. |
| Examiner Signature | CRANE | |
| Date Considered | 3/2005 | |

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